Claims

We claim:

1. A system for summarizing multimedia, comprising:

means for storing a compressed multimedia file partitioned into a sequence of segments, and a metadata file including index information and an importance level information for each segment in the sequence, the importance level being continuous over a closed interval;

means for selecting an importance level threshold in the closed interval; and

means for reproducing, using the index information, only segments of the multimedia having a particular importance level greater than the importance level threshold.

2. The system of claim 1, in which the sequence of the segments is temporal, and the index information includes a start time and an end time of each segment.

3. The system of claim 1, in which the sequence of the segments is temporal, and the index information includes a frame number.

4. The system of claim 1, in which the multimedia is compressed.

5. The system of claim 1, in which the multimedia includes video and audio signals.

6. The system of claim 1, in which the importance level is contained in a file that is distinct from the multimedia file.

7. The system of claim 1, in which the importance level is a real number.

8. The system of claim 1, in which the multimedia comprises text and binary data.

9. The system of claim 1, in which the importance level threshold is expressed as a range of real number values.

10. The system of claim 1, in which the importance level threshold is expressed as a plurality of ranges of real number values.

11. The system of claim 1, in which the importance level threshold is viewer selected.

12. The system of claim 1, in which the importance level threshold is selected automatically.

13. The system of claim 1, in which only segments of the multimedia having a particular importance level less than the importance level threshold are reproduced.

14. The system of claim 1, in which the multimedia file includes a plurality of programs, and further comprising:

means for reproducing only segments of the plurality of programs having a particular importance level greater than the importance level threshold.

15. The system of claim 1, further comprising:

means for specifying an abstraction ratio, the abstraction ratio representing the importance level threshold.

16. The system of claim 1, in which the segments are ordered according to the importance level, and further comprising:

means for reproducing the segments in a descending order of the importance level.

17. The system of claim 1, in which the reproducing terminates after a predetermined amount of time.

18. The system of claim 1, further comprising:

means for recording the compressed multimedia and the metadata file on the means for storing.

19. The system of claim 1, in which only segments greater than a time threshold are reproduced.

20. The system of claim 19, in which segments shorter than the time threshold are extended to satisfy the time threshold.

21. The system of claim 20, in which the extending is additive.

22. The system of claim 20, in which the extending is multiplicative.

23. The system of claim 1, further comprising:

means for searching the multimedia to locate a particular segment to begin the reproducing.

24. The system of claim 1, in which the means for storing is an optical storage disk.

25. The system of claim 1, in which the means for storing is a magnetic storage device.

26. The system of claim 1, further comprising:

means for extracting the importance level and the indexing information while decoding the multimedia file.

27. A method for summarizing multimedia, comprising:

storing a compressed multimedia file partitioned into a sequence of segments;

storing a metadata file including index information and an importance level for each segment in the sequence, the importance level being continuous over as closed interval;

selecting an importance level threshold in the closed interval; and

reproducing, using the index information, only segments of the multimedia having a particular importance level greater than the importance level threshold.

28. The method of claim 27, in which the sequence of the segments is temporal, and the index information includes a start time and an end time of each segment.

29. The method of claim 27, in which the sequence of the segments is temporal, and the index information includes a frame number.

30. The method of claim 27, further comprising:

compressing the multimedia.

31. The method of claim 27, in which the multimedia includes video and audio signals.

32. The method of claim 27, in which the importance level is contained in a file that is distinct from the multimedia file.

33. The method of claim 27, in which the importance level is a real number.

34. The method of claim 27, in which the multimedia comprises multiplexed video and audio signals.

35. The method of claim 27, in which the importance level threshold is expressed as a range of real number values.

36. The method of claim 27, in which the importance level threshold is expressed as a plurality of ranges of real number values.

37. The method of claim 27, in which the importance level threshold is viewer selected.

38. The method of claim 27, in which the importance level threshold is selected automatically.

39. The method of claim 27, in which only segments of the multimedia having a particular importance level less than the importance level threshold are reproduced.

40. The method of claim 27, in which the multimedia file includes a plurality of programs, and further comprising:

reproducing only segments of the plurality of programs having a particular importance level greater than the importance level threshold.

41. The method of claim 27, further comprising:

specifying an abstraction ratio, the abstraction ratio representing the importance level threshold.

42. The method of claim 27, in which the segments are ordered according to the importance level, and further comprising:

reproducing the segments in a descending order of the importance level.

43. The method of claim 27, in which the reproducing terminates after a predetermined amount of time.

44. The method of claim 27, further comprising:

recording the compressed multimedia and the metadata file on the means for storing.

45. The method of claim 27, in which only segments greater than a time threshold are reproduced.

46. The method of claim 45, in which segments shorter than the time threshold are extended to satisfy the time threshold.

47. The method of claim 46, in which the extending is additive.

48. The method of claim 46, in which the extending is multiplicative.

49. The method of claim 27, further comprising:

searching the multimedia to locate a particular segment to begin the reproducing.

50. The method of claim 27, in which the multimedia file and the metadata file are stored on an optical storage disk.

51. The method of claim 27, in which the multimedia file and the metadata file are stored on a magnetic storage device.

52. The method of claim 27, further comprising:

extracting the importance level and the indexing information from the multimedia file while decoding the multimedia file.

53. A computer readable medium, comprising:

a compressed multimedia file partitioned into a sequence of segments; and

a metadata file including index information and an importance level information for each segment in the sequence, the importance information being continuous over a closed interval, the compressed multimedia file and the metadata file, when read by a computer using the index information, causes the computer to reproduce only segments of the multimedia having a particular importance level greater than a importance level threshold.

54. The medium of claim 53, in which the sequence of the segments is temporal, and the index information includes a start time and an end time of each segment.

55. The medium of claim 53, in which the sequence of the segments is temporal, and the index information includes a frame number.

56. The medium of claim 53, in which the multimedia is compressed.

57. The medium of claim 53, in which the multimedia includes video and audio.

58. The medium of claim 53, in which the importance level information is contained in a file that is distinct from the multimedia file.

59. The medium of claim 53, in which the importance level is a real number.

60. The medium of claim 53, in which the multimedia comprises multiplexed video and audio signals.

1 61. The medium of claim 53, in which the segments are ordered according to the
2 importance level.

1 62. The medium of claim 53 is an optical storage disc.

1 63. The medium of claim 53 is a magnetic storage device.

1 64. The medium of claim 53, further comprising:
2 flags for indicating a validity of the metadata.